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by

C. West Churchman

Internal Working Paper No. 120

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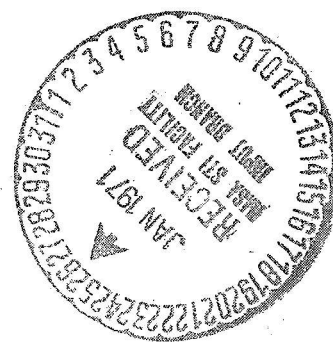
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Social Sciences Project  
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# ON THE FACILITY, FELICITY, AND MORALITY OF MEASURING SOCIAL CHANGE\*

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In a recent unpublished paper entitled "Questions of Metric," Stafford Beer cites some letters to the London Times addressed to a question of social change. The issue concerned the seven hundred years old Norman Church of St. Michael of Stewkley, which stands square in the middle of a possible runway of a possible Third London Airport--not by design surely. A cost benefit analysis had been made by a commission for each alternative site of the proposed airport. In the instance of St. Michael's Church, the commission had used the extant fire insurance policy on the church as the base. This method of analysis caused considerable anger among antiquarians throughout the United Kingdom. A Mr. Osborn suggested instead that one should take the initial investment, say 100 pounds in 1182, and discount it at 10 per cent per annum to 1982; the approximate result is a one followed by 33 zeros--a mere decillion pounds. As Beer points out, if you adopt either cost-benefit strategy, you automatically decide the issue. If you use the fire insurance approach, the church is virtually an irrelevant consideration in the decision of where to build the airport; whereas if you use the discount approach, the church is all that matters: it is inconceivable that one should build the runway there.

What I found most significant about this story of measuring proposed social change was the ease with which both the commission and Mr. Osborn were able to assign numbers. The facility is clearly a product of the history of enterprising accountants and economists, people who have spent

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their lives assigning numbers to social changes. So facile has the process become that so long as there is a hint of reasonableness, the numbers themselves carry the conviction of their accuracy. And both the commission and Mr. Osborn seem to have a plausible viewpoint. The commission might argue as follows: evidently, people do value St. Michael of Stewkley, in the sense that they are willing to pay a price for its value in the event that it is destroyed. This value is clearly represented by the amount of fire insurance they are willing to subscribe to, because the only reward for paying the premium is the expectation of a return provided the church is destroyed. Mr. Osborn, on the other hand, might argue that an investment was made in the year 1182, which could instead have been deposited in the yet-to-be Bank of England. Cashing in on the investment in 1982 would be like "cashing in" on the church to build a runway in 1982; assuming rational decision making, the total imputed value of the investment cannot be greater than the current value of the church.

My main point is that the facility of assigning numbers means that only a modicum of plausibility is needed to convince people that the numbers represent reality. In both of the cases cited, just a little more thinking would have ruined the case. All one has to do is apply Immanuel Kant's moral law, which, paraphrased, says that if a particular principle is used to measure social change for policy making, then this principle should be universally applied. The principle, of course, may contain reasoned exceptions and stipulations, but once it is enunciated, it ought to be applicable to all instances, or else it is basically unfair, i.e., immoral. Now the commission's principle seems to read as follows: whenever there is a positive value (benefit) to destroying an object X, then the cost of destruction is to be computed by using the extant fire or life insurance as a base. The commission's policy, if

universalized, would neatly solve the population problem. There is surely a value in not having all the people which the demographers predict will be here in the year 2000 if nothing is done to prevent it. So--merely calculate the benefit of eliminating X and compare it with X's life insurance! The result is that only the best will survive--the Kennedys and the Onassises. Mr. Osborn's principle, on the other hand, is very nice for old criminals and professors: the investment in their birth for hospitals, nurses and doctors discounted to age 70 would make the decision to execute or retire unthinkable.

The two examples, then, are silly. So why mention them? Why, just to challenge any number assigners to come up with a better method, based on a principle which will pass Kant's test. More to the point, the examples clearly show how number assignment is based on very strong value and reality assumptions.

Suppose for the moment that we look at the reality aspect of measuring social change. We'd surely like to say that a measurement should reflect what really occurs. But what does this stipulation mean? We could make its meaning clear if somehow or other we could get outside the measuring system and what it is trying to measure. If we could do this, then we'd say to ourselves, "There's reality R in its box, and when R changes it sends a message or impulse to the measuring system M in its box. Since we're outside all this, and can observe it accurately, let's see if the numbers generated by M accurately correspond to the changes in R." We'd certainly have to fuss over the criteria of accurate correspondence, but that would be a technical matter we could hand over to some of the brilliant minds who like to fuss with these matters.

But of course this way of describing reality doesn't work at all, as any auditor knows. It isn't sufficient to stipulate that a good audit

has occurred if a second party testifies that the auditor's numbers correspond to reality, because the second party may belong to the auditor's firm, or a competitor's firm, or the broad class of the inexperienced. To make any sense at all of this way of defining reality, we have to set down the stipulations of the competent, disinterested observer,<sup>1</sup> which as experienced auditors know, is no easy task. To accomplish the task we need a fairly elaborate theory of competence and honesty. So here is the same theme again: to know that we are measuring real change we need to have a strong theoretical base.

But suppose now that we do succeed in finding a satisfactory basis for assessing competence and honesty. Would we then want to say that M is measuring real social change if a sufficiently large class of competent, disinterested observers agree that it is? Why should agreement imply that reality is being measured? Here I'd like to introduce a pragmatic principle at least as old as William James. If I tell you that the last book on the top shelf of my study's bookshelf is red, and I present affidavits of color competent observers which certify my account, have I described reality to you? No, said James, because the description makes no difference whatsoever in your behavior relative to your practical goals. To be real for you is to make a difference for you. If I'd said that the red book is that set of dull platitudes of Chairman Mao, then some of you might report me, or admire me more, or whatever, and then reality comes into being.

Suppose we go back to Stewkley where the British Division of the Cleveland Wrecking Company is about to smash a priceless glass window of St. Michael's. We want to measure this social change. "There goes 3,000 pounds," says the commission, and could hardly care less. "There goes a

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<sup>1</sup>"independent" in CPA language.

decillion pounds," says Mr. Osborn, and could hardly care more. But what has really happened? If we employed the method suggested earlier, we would bring in our disinterested observer to decide which number accurately maps reality. He would say things like "20 windows were broken, each 700 years old," or, "it took two weeks to haul St. Michael's away at an expense of 1,472 pounds and a sixpence."

Such a disinterested observer, in fact, would be very like many experts who today are measuring social change. Consider, for example, the issue of population. Here beyond a doubt is social change. In Paul and Ann Ehrlich's *Population Resources Environment*,<sup>2</sup> we are told that the doubling rate of the world's population around 1970 is about 30 to 35 years, in 1930 was 45 years, in 1850, 200 years. The book contains a number of other numbers: food production, pollution production, and so on. All of these numbers say something about social change, but you will note that they are all very much like the disinterested observer of the smashing of St. Michael's. No doubt in both cases the reports may be a bit shocking, and in this sense they "make a difference." But the difference may have no pragmatic import whatsoever. The Ehrlichs have much to say about the number of people who will starve if things go on as at present. This is much like telling us that the round ball will break St. Michael's window unless its basic policy of motion is changed. Another disinterested observer, also using numbers, could tell us how many people felt sad and for how long when they learned about St. Michael's or the starving children of Biafra.

It is really astonishing how many crisis-numbers are being thrown at the public these days. They all describe what programmers call the

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<sup>2</sup>W. H. Freeman and Co., San Francisco, 1970.

rate of activity in a certain sector of society. Since often the rate of activity-pollution or poverty or information-spread yields uneasy or horrible feelings, people and politicians are apt to conclude that something must be done to lessen the rate, or even to make it negative. But even if the disinterested observer is telling us about real impending disaster provided an activity continues to increase, it by no means follows that he is telling us about real social change in a pragmatic sense. The reality question is, "So what?" Only when we can measure in such a way that we know what to do about the result, only then will we measure social change.

The point I am trying to make is that the amount of change in some property of society or its environment by itself does not "measure" social change. What is needed besides is the basis of decision making which shows how the amount of change makes a difference. A good illustration is the so-called "protein gap," which very much interests the nutritionists these days. We are told,<sup>3</sup> for example, that a pregnant woman who lacks a sufficient amount of protein in her diet may well give birth to a deformed baby. We are also told that the amount of protein (note, again, the amount theme) in certain areas of the world is seriously deficient. What can be called the Fallacy of Filling the Gap immediately infers that we should produce and distribute more protein. Perhaps we should, but the protein gap by itself does not imply any such action. Besides a knowledge of the gap, we need to assume that the crisis warrants certain expenditures, that policies of making more protein will not introduce concomitant gaps and inequities in other areas, e.g., by changing the ecology of fish life. It so happens that protein is used

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<sup>3</sup>See International Action to Avert the Protein Crisis, United Nations, New York, 1968.



as calories in calorie deficient diets, so that filling the protein gap by no means solves the nutritional problem. And so on.

Of course a profession may adopt a separatist philosophy to avoid the tremendous responsibility of measuring real social change in a pragmatic sense. The profession of accounting may say the same thing that many demographers say: "Look, we can't tell you what to do about the activity rate, but we can tell you what the rate is. We're like the speedometers on automobiles which measure changes in the car's velocity. The driver must decide what to do about a reading of eighty miles per hour." But the analogy doesn't work, for a very obvious reason: it's perfectly clear to both driver and auto designer that velocity is a critical aspect of the driving experience, and the method of correcting for too much or too little is also obvious. Given that we ought to drive automobiles if we want to, the speedometer is a great help and accurately measures social change. But the critical question is still there: ought we to drive automobiles? The speedometer is silent on this point. Given that we ought to reduce population by forcing every lady to take the pill, then the expert can or soon will tell us how to do the job. But the demographer is silent on the question whether we should so force pill taking.

The fallacy of the separatist philosophy is the one I mentioned earlier: once you begin to emphasize some aspect of real change by putting numbers on it, you may divert attention from the real issue. Consequently, I can't help but feel that the professions which try to place numbers on social change have the responsibility to go the entire way--to understand why the numbers make a difference and why the difference they make is the right difference.

For example, I believe the accounting profession should become deeply

involved in helping society to measure the most critical aspects of social change--of pollution, population, information, whatever. But to do so, I think the profession will have to change some important traditional attitudes. It is to these social changes of the profession that I'd like to address the concluding remarks.<sup>4</sup>

In recent years, we have heard a great deal about how accounting and economics need to be enlarged to include "social indicators" or "social accounting." But I don't think the need is for more numbers, at all. The need is for the basis of justifying the numbers--the model or world view which tells us what difference the numbers make.

Decision-oriented accounting is quite different from accounting's traditional role in the private sector. Often the service which accounting has given is essentially comparisons: the accounts tell us how this period's costs, inventories, turn-over, profit, etc., compare with last period's. Comparative accounting is much like the rate-of-change of an activity mentioned earlier. It is useful if we know that the comparison makes a real difference in decision making, useless otherwise. Hence one basic change of attitude is towards finding a model for decision making. Of course, what I am saying is that the professions of operations research and accounting need to form a long-overdue alliance. But I think both professions will have to give up one cherished attitude--namely, the assurance of the expert. The "model" to which I referred is by no means easy to create, nor can any of us feel assured that a candidate model represents social reality. No longer can we call upon the disinterested, competent observer to settle our issues. There is no "outside" which can observe the "inside" trying to depict reality.

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<sup>4</sup>To be sure, some changes have already been suggested.

Returning to Stewkley once more, both the commission and Mr. Osborn had a model; there is no competent, disinterested observer to tell us which is right, if either. But is this so? Why not say as before that if a sufficiently large group of sufficiently competent experts agree, or--via the Delphi technique<sup>5</sup>--converge on agreement, then the model can be taken as representing reality? The answer, of course, is that to assume that a convergence of agreement of experts represents reality is to presuppose a fairly elaborate theory of the relationship between reality and expert knowledge, as well as a theory about how expert opinion is to be ascertained. Also assumed is our old friend the value judgment. Experts may tell us that in so-and-so many years we can expect brain-to-computer linkages and genetic engineering. This is like telling us that the population will double, the protein source will shrink, the air will be dangerously polluted. To repeat, what is left out of the expert's opinions is all we really need to know: what to do about it if they accurately portray a real trend.

No, if we are to serve society by measuring social change, I think we'll have to do so in an entirely different mode from the traditional one of being the separate, disinterested and objective observers. These stipulations seem clear (to me):

1. We are not the only or even the basic methodology of assessing social change. There are other equally forceful methods: aesthetic, religious and political are three good examples.

2. We are not objective in the old-fashioned sense of "being apart," and "nonbiased." Our bias is based on our conception (world view) of how social reality works and what "makes a difference."

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<sup>5</sup>Olaf Helmer, Social Technology, Basic Books, New York, 1966.

3. (My own bias.) In Beer's paper mentioned earlier, which has a very similar theme to this one but a radically different approach, Beer argues for a "meta" measuring system, one that measures the "eudomonia," or "prosperity," which is flowing through the social system. Beer approaches the problem in this manner because he likes to see the world as a flow, with feedbacks and other cybernetic devices. My bias is to look for the fiber of the system, the structure that ought to hold it together. This approach amounts to saying that we require an explicit moral base for measuring social change. Far more important than "agreement of experts" is the moral prescription which says that our measure should be based on a policy of moral universality--everyone to count as an end--and not a means only--a deep analysis of how people are affected by the difference the measure will make.

For example, Mr. Osborn was nearer to being right than the commission, but for the wrong reasoning. The point is not whether to discount from the past--but whether to discount into the future. I can see no moral justification in our saying that the numerical reward (joy, aesthetic pleasure, inspiration) of some future viewer of St. Michael's must be discounted back to present value, much as a future insurance premium would be--though I have some feeling-deficient friends who say just this: "The hell with the values of a generation as yet unborn, or at least 10% the hell per annum." So if we paint our world view with the Third London Airport as a temporary value for, say, thirty years of use and then no value thereafter, but St. Michael's will always bring joy to some thousands or so, then the cost number to be assigned to smashing the church is very large, because no future joy is to be discounted to present value on moral grounds.

Now there is no authority for my moral law, and many may disagree

with it. Indeed, many should disagree with it, because the essence of moral discourse should be debate, not agreement. Anyone like myself who takes part in measuring social change must on the one hand declare and argue for his moral position, but should never on pain of displaying hubris, assume that he is the authority. So I declare and argue for the position that every social policy needs not only a cost-benefit number, but that the basic theory of assigning such a number should be revealed and assessed for its moral implications--i.e., whether if generalized it would imply a world where people are treated as ends rather than means only.

4. As number assigners we must be stubborn but not necessarily humorless. We will insist that the value of a life can be numbered and compared, no matter what our enemies say. So the population scarers may horrify us, but let us number the cost of a human starved to death. Of course, we can't be all that deadly serious about it, either. We should take on a lesson from Kenneth Boulding, who suggests that each citizen be assigned 22 deciles of a child, which he can sell on the open market place. This way the population will remain stable, assuming no bootlegging operations occur. You see, once we give up the silly notion that numberers have the final answers, we can really enjoy ourselves now and then.

5. I hope the accounting profession will join other professional associations in looking at today's problems of society and suggesting some ways of assigning numbers to social change that make a difference--with all the humility, humor and purposefulness possible.